



authorize

White Paper

Version 1.0* - Alpha version

A decentralized sharing economy protocol for movable goods.

Powering the next generation of sharing platforms.

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*This version and its contents are current as of 10/03/2018 and supersede all previous versions of this whitepaper or any public statements made about **authorize** and the ATR Token Sale, and are subject to change. This English version is to be relied upon as the most accurate and updated, as other language translations may have mistranslations and may be outdated.

Abstract

The authorize protocol uses the power of blockchain technology to simplify, regulate, and automate the sharing of movable goods, paving the way for the next generation of sharing platforms.

We are building a decentralized ecosystem that enables a seamless and trustless sharing of movable goods like cars, yachts, or planes. The protocol supports a community of service providers (arbiters and event supporters) and end users (movable goods owners and renters).

Effective community arbitration and growth are established through a system of reputation and rewards, with an economy based on the ATR token. Movable goods are digitalized using non-fungible tokens, which allows their use to be regulated with smart contracts.

The authorize protocol runs on the Ethereum network and is accessed through an Application Program Interface (API) and a decentralized application (DAPP).

Proof-of-concept was established with our prototype partner, FurlanTech Supercarshare. This use case demonstrates the value of authorize as a facilitator enabling super cars to be easily shared with confidence and without the need for trust.

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1. Problem, Solution, and Vision

Imagine owning a Lamborghini. It's an awesome ride, but not something you can use in your everyday life. Most days, it's just sitting in your garage, gathering dust, and losing value. Why not rent it to someone instead? That way, your car is transformed from a liability into an asset.

This is the basic idea behind the sharing economy, most famously utilized by Airbnb to let people share their real estate.

For movable goods – cars, bikes, yachts, planes, etc. – sharing normally involves a lot of trust. That makes it hard, if not impossible, to rent to strangers. How are you going to guarantee that your car will be driven in a nice and safe way, or that the renter isn't going to use it for illegal purposes?

The authorize protocol uses a decentralized arbitration system to determine if a movable good (e.g. your Lamborghini) was used as agreed. When someone rents an asset, the owner and the renter agree to certain terms, which are put into a smart contract on the Ethereum network. Whether the terms of the contract were followed is determined by our community of arbiters.

The community members will look at data from state-of-the-art sensors installed in the vehicle, video from the rental, as well as pictures from before and after the rent event. Using this data, they will determine if the rent event was successful.

All movable goods in the authorize protocol are digitalized, creating non-fungible tokens to represent them on the blockchain. This opens up a world of possibilities in regard to asset management and ownership, unlocking the full potential of the sharing economy.

authorize is a vision of a world where sharing movable goods is the norm, not the exception. We want to enable sharing of not just cars, but basically anything that moves, on such an easy and safe level that sharing makes sense for everyone.

We're not building the Airbnb for cars. We're building the framework that would allow it to function.

2. Protocol

2.1 Token smart contract

The ATR token will be implemented using the well-known and widely used ERC-20 standard on the Ethereum blockchain. Additional functionalities will be developed on top of the ERC-20 standard.

2.2 Goods digitalization

Each movable good will be digitalized within the authorize protocol using the EIP-841 standard, which allows the creation of non-fungible tokens (NFT) that can be managed and owned by another address. Therefore, each asset's detailed information and description will be saved on the blockchain, preventing unauthorized modification.

Goods will be digitalized for the following reasons:

- Creating a unique identity for each asset on the blockchain
- Tracking the asset's usage
- Creating a marketplace with transparent availability of assets
- Enabling shared and easily transferable ownership of assets

The digitalization process will be performed by use-case agencies, which will co-sign the creation of the NFT with the asset owner(s), thus officially digitalizing the item and enabling it to be shared within the authorize protocol.

The protocol will include a unique multisig contract, which will work as proxy ownership of the NFT tokens. This allows the movable good to be owned by one or more addresses. In doing so, we will allow a group of addresses (individuals or businesses) to own a single asset through NFT, as well as facilitate crowdsourcing when purchasing movable goods as an investment.

2.3 Goods management

The owner of the NFT asset will be able to delegate other addresses (individuals or businesses) to manage it. This enables the owner of a NFT to outsource the sharing of their asset and collect profits automatically.

Taking supercar sharing as an example (a use case validated with our prototype partner), the owner of a car can house it in the garage of a host, who lives next to a scenic road. This is a much more attractive location for renting supercars than the city, where the owner lives.

Because it is housed at a better location, the car gets more rentals, increasing profits for the owner. Since it is managed remotely, the owner doesn't have to deal with the rental process. The car's host is compensated for their services in ATR tokens.

2.4 Rent event

A rent event is characterized as an event where one user transfers the usage of a digitalized asset to another user. This includes asset reservation, delivery, usage, return, and community validation.

authorize will cover two main aspects of the renting process:

1. Safety aspect:

- remote supervision of the digitalized asset before, during and after the rental process
- analysis of the renter's operating ability, using state-of-the-art tracking equipment (recordings of critical situations are delivered to community experts for inspection)

2. Logistic aspect:

- asset transportation services (getting the asset to the desired location);
- asset hosting on popular locations
- asset preparation for the rent event

2.4.1 Rent reservation

The owner of a digitalized asset defines a set of parameters, which have to be met by the renter before the reservation can be confirmed.

The following variables will be adjustable:

- Reputation status of the renter
- KYC status
- Number of successful rent events
- Operating ability average score
- Size of security deposit

Approval of the rent event is based solely on the asset owner's requirements. Users that don't meet all requirements will not be allowed to place a rent reservation. This allows the asset owner to determine the minimum reliability and competence level of renters.

Once the reservation is confirmed and locked in the smart contract, the user will follow through automatically and pay the rent event. The owner of the digitalized asset token is obligated to offer an asset at the specified price for the specified period. Penalties in form of token payment and/or loss of reputation points will apply in the event of cancellation by either party.

2.4.2 Rent procedure

The rent event smart contract will log the exact time period of the rental, the condition of the digitalized asset, the exact sum charged for the service, and rules for the asset's acceptable usage.

In case the renter breaches the smart contract agreement, they will lose part of their security deposit, as well as points in their reputation score. The portion of security deposit lost depends on the severity of the violation.

On top of that, since every possible metric of the asset is tracked, the protocol can request the immediate return of an asset to its host or owner; should it be determined that the renter is putting the asset at risk.

Once the rent period is over, the collected data (photos, tracked metrics, etc.) is sent to the authorize community for analysis and evaluation before concluding the event.

As an extra precaution during the first year of protocol operation, the use case demonstration agency back office (for each individual use case) will have a veto vote in case a dispute is raised by any rental party, within 7 days after the conclusion of a rent event.

2.5 Goods condition evaluation

2.5.1 Photographic evidence

Every time an asset is rented, both parties (owner/host and renter) take photos of the asset before and after the rental event takes place. Exactly what they have to take photos of is pre-determined, based on the type of movable good rented. The full set of photos thus shows all the relevant parts of an asset. When an asset is returned, the photos are automatically distributed to the authorize community for arbitration.

2.5.2 Usage tracking technology

Using state of the art technology black boxes that can track speed, accelerometer info, and usage, the NFT owner has complete insight into what is happening with their asset. They are able to receive notifications about possible contract violations, monitor usage behavior, and order the immediate return of their asset, should it prove necessary.

Usage tracking technology will be installed in every movable asset. The authorize protocol will utilize the full functionality of this system, to provide comprehensive information to the arbitration community and movable good owners.

2.5.3 Video evidence

Where applicable, assets will be equipped with dashcams. These cameras will only be activated if the onboard sensors detect an asset was used outside of the agreed parameters. For example, if a car's lateral acceleration exceeds the pre-agreed maximum of 0.8 g (set by the asset owner), the camera will record video, which will be used to determine what was going on and how well the driver reacted.

2.6 Rent event analysis

Once a movable good is returned, all the data from the rental – the photos, video and tracking sensor data – are pushed to the authorize community for evaluation. The community's role is to determine whether the rent event matched the parameters logged in the smart contract. If they determine that the asset was returned as agreed, they validate the smart contract, thus concluding the rent event.

The community members act as arbiters, by voting on the condition of the returned asset. If they successfully determine the asset's condition (based on the consensus decision), the arbiters are rewarded in ATR tokens. Arbiters who make the wrong decision are penalized. Voting weight as well as reward is based on each member's reputation status and token stake. Higher ranking arbiters are rewarded with a larger share of the reward pool, which motivates the community to score as precisely as possible.

2.7 Reputation system

Part of the core technology of the authorize protocol is our reputation system, which will serve the dual purpose of price determination, as well as goods and service allocation.

- Renters with a high reputation level will benefit from access to higher-level NFTs and will be able to rent at better prices
- Owners and service providers with high reputation will benefit from increased demand
- Community members with high reputation will benefit from early access to arbitration opportunities, as well as a larger share of the rent event award pool

Each time a user performs an action inside the protocol, the reputation system will log it and calculate the change in reputation level of the user.

If a community member falls below the minimum required reputation level, they will no longer be able to act as an arbiter.

2.8 Crowd purchasing of NFTs

The authorize protocol will support the purchase of new movable goods, using crowdfunding methods. Users will be able to propose a new NFT and start collecting funds for its purchase. Once enough funds are collected, a third party agency will take care of the conversion of cryptocurrency into fiat and purchase of the newly acquired movable good (e.g. car, airplane, yacht, etc.).

Each user that participated in the crowd purchase will receive a part of the NFT ownership, proportional to their contribution.

Ownership of a NFT in this case represents a right to use and the ability to earn funds generated by renting the NFT. It is up to the owners to determine how much the asset will be used vs. rented. However, if they decide not to rent the asset at all, they will still need to pay the use case agency's fee or give up a percentage of the NFT ownership to the agency.

After the newly purchased movable good's warranty expires (e.g. 2 years) it will be listed on the market and sold. The sale can happen on a decentralized exchange using cryptocurrency.

The proceedings of the sale are distributed among the owners of the sold NFT.

2.9 First use case: FurlanTech Supercarshare

FurlanTech is a supercar rental company. They are authorize's prototype partner, implementing the protocol in their Supercarshare app. The app is meant to create a global supercar sharing economy, which would (in an ideal situation) position FurlanTech as the world's biggest supercar rental company, without the need to purchase any additional cars. Just like Airbnb is the world's largest accommodation provider, but does not own any real-estate.

Supercars are an excellent use case for authorize, because they are high-value items, where renting traditionally involves a lot of trust and therefore a lot of risk.

2.9.1 Renter and use type ranking

Supercarshare renters are divided into 3 tiers, based on their reputation level.

For every customer in **tier 1**, basic KYC and verified driving license will be needed, plus a bitcoin, ethereum, credit card, or ATR security deposit.

Tier 2 users will need, besides tier 1 info, a filled out Supercarshare questionnaire (hobbies, what kind of people they would like to meet, known position in a company, social network profiles) and rental history with Supercarshare.

Tier 3 will require extensive rental history and perfect rental track record with Supercarshare, as well as a higher security deposit or staked token amount.

Users with high reputation levels will be able to rent better cars under better conditions. Besides limiting which cars a user can rent, their reputation score also determines how they are allowed to use the car.

The main use types are:

- 3.2.1. Meet and greet (networking and social visit with a supercar owner)
- 3.2.2. Taxi ride (supercar owner takes you for a drive)
- 3.2.3. Easy drive (g sensor up to 0.5g)
- 3.2.4. Normal drive (g sensor up to 0.8g, up to 250km/h)
- 3.2.5. Racing drive (g sensor up to 1.2g, no speed limit)

It is up to the asset owner to decide which renter reputation level is needed for which use type of their car.

2.9.2 First real life usage of the protocol

Cars & Coffee event in Brescia, Italy (13.04. - 15.04. 2018)

Four vehicles will need to be transferred from the base location to the rent location, one of which is a Porsche 911 GT3 from the FurlanTech rental fleet. The car is already equipped with the state-of-the-art car monitoring black box that enables tracking of lateral and longitudinal acceleration, and speed. Under extreme circumstances, the car's GPS position may also be tracked.

An authorize community member with staked tokens will transfer the car from Ljubljana, Slovenia to Brescia, Italy. Before the transfer, the staked ATR tokens will be locked for the time of the transfer. After the transfer is finalized and delivery to the location is confirmed, new ATR tokens will be awarded to the community member.

In case of damage during the transfer, the community member's staked ATR tokens will be released to the owner of the car (FurlanTech). With these tokens, together with the car's insurance, the owner will be sufficiently compensated, to cover the cost of any repairs and loss of potential revenue during the repair period.

Once the car is on location, the renter will rent the car with the Furlantech supercarshare app. This will require a certain amount of tokens to be staked by the renter, as a security deposit. Before the car is rented, a set of (minimum) 17 photos will be taken with the Supercarshare app. After the car is returned, photos of the same positions will be taken and sent to arbiters for evaluation. If the car is determined to be undamaged, the locked stacked tokens from the renter (security deposit) will be released.

The car will be rented for a normal drive. If the sensors detect a violation of the rental agreement (e.g. lateral acceleration above 0.8g), dashcam videos will be sent to the arbitration community, for evaluation. If violations are confirmed, a portion of the renter's staked tokens will be given to the car owner, as compensation for unsuitable use.

3. Ecosystem

3.1 Participants

- NFT owners
 - Individuals that own one or several movable goods.
- agencies utilizing the authorize protocol
 - Companies that manage or own several movable goods.
- hosts
 - Individuals or companies that store cars, boats, planes etc.
 - As a guarantee of their professional approach and security of the hosted goods, hosts will be required to stake a predetermined amount of tokens.
- renters
 - renters will be able to access the services through individually developed platforms.
 - No blockchain or cryptocurrency knowledge will be required in order for renters to use the platform.
- Use case agency back-office
 - While the operation will in time be completely decentralized, a back-office will be used to help the community solve possible disputes during the first year of operation. This is just an extra safety measure.
 - In case a dispute is raised by an NFT owner or renter, the back-office will have a right to veto the decision.
- agents
 - Authorized agents represent the core of our community. They will help run the authorize ecosystem, by overseeing and analyzing rentals and conditions of assets. Agents can prepare the NFTs and take care of the logistical services.
- AI agents
 - Agents with larger amounts of staked tokens will gain access to a special API (connected to a smart contract), which will allow them to connect AI software to the protocol and perform all of the supported actions programmatically. Software that will be able to accurately determine the condition of the NTF before and after the rent event based on the provided data will be rewarded by the authorize protocol.

3.2 Arbitration system

The most important aspect of the authorize protocol is community activation. authorize will activate a community of blockchain arbiters, which will earn ATR by performing activities within the protocol. This results in the creation of a new sharing economy, where the community is what makes the rental process work seamlessly and without the need for trust. When renting with authorize, the only thing you need to trust is that everyone will work in their own best interests.

3.2.1. Staking

Each arbiter has the option of staking a certain amount of ATR tokens. Every time an arbiter makes a wrong choice, they lose part of their stake.

Staking arbiters get earlier access to voting opportunities and a bigger portion of the reward pool.

3.2.2. Confirmation requirements

The protocol requires 21 confirmations before an arbitration event can be completed.

Each non-staking arbiter's vote is worth 1 confirmation, while a staking arbiter's vote is worth 3 confirmations. Therefore, a minimum of 7 arbiters are needed for the successful completion of an event, while the maximum number is 21, if none of them staked their tokens. Any combination in between is also possible - e.g. 3 staking (worth 9 confirmations) and 12 non-staking arbiters.

It is not possible for the total number of votes to exceed 21. Therefore, if a staking arbiter joins the arbitration event late in the arbiter selection process, some non-staking arbiters may be excluded. For example, if there are 5 staking arbiters (15 votes) and 5 non-staking arbiters, this totals 20 votes. If another staking arbiter then joins the event, the total number of votes would reach 23. Because this is not possible, the last 2 non-staking arbiters to join the event are excluded from the arbitration process.

3.2.3. Payment distribution

The rent fee for each event is split 75/25 between the asset owner and use case agency. The agency then splits their profits 60/40 with the authorize community.

Therefore, the asset owner gets 75%, the use case agency gets 15%, and the authorize community gets 10%.

3.2.4. Stakes, No Stakes, Rewards

Once an arbitration event is completed, the reward is divided between all arbiters, based on how many confirmations each contributed. Therefore, each staking arbiter gets three times more tokens than each non-staking arbiter.

Example (rounded numbers):

Reward pool: 1000 ATR

Staking arbiters: 4

Non-staking arbiters: 9

Amount of reward that goes to staking arbiters: 571 (**143** per arbiter)

Amount of reward that goes to non-staking arbiters: 429 (**48** per arbiter)

3.2.5. Dispute arbiters

If the required consensus is not reached or a dispute is raised by any party involved in the event, it will be settled by community members with **dispute arbiter status**.

To reach dispute arbiter status, a user needs to be within the top 1% of all arbiters and must be granted this status by the use-case agency. It is up to the agency to review the arbiter and confirm their status. It is also up to the agency to take away dispute arbiter status. Once a user has been granted this status, they will not lose it if they fall out of the top 1%.

Before any user is granted dispute arbiter status, disputes will be settled by each individual use case back-office.

3.2.6. Picture authorization process

Before and after each rent event, the owner and renter both take pictures of the movable good. For each picture, a SHA256 hash will be stored permanently into the authorize arbitration smart contract, alongside its URI.

When the asset is returned, the arbitration community will examine the pictures and determine if the movable good has been visibly damaged.

Arbiters will have access to a DAPP, where the before and after pictures will be presented side by side, allowing users to vote whether the movable good was returned damaged, undamaged, or if the pictures are not suitable to reach a decision.

3.2.7. Photo grading

The required photo set will be determined for each individual use case, depending on the optimal way to document that type of movable good.

In the case of supercar sharing with the FurlanTech Supercarshare app, each photo set must include a minimum of 17 photos:

- 4x side
- 4x rims
- 4x corners
- 1x front chassis
- 1x rear chassis
- 3x interior (driver's and passenger' seat, mileage counter)

Besides the required 17 photos, extra photos may be taken of damaged parts of the car, to further clarify the asset's status before and after the event. This means that, if a renter sees a scratch on the car, they should take an extra photo of it.

Each successful photo grading confirmation is worth 1 point.

Both the renter and asset owner must take a full set of photos before and after the NFT is rented.

3.2.8. Video grading

authorize will offer a web guide, explaining how to grade different critical situations that occur during a rent event. Grading will be performed on a scale of 1 to 10. Exactly what each number represents depends on the use case.

In the case of FurlanTech Supercarshare, 1 represents a dangerous driving situation with a near accident, while 10 represents a good driver going fast, but within what the car can handle.

A median grade will be calculated from the participating arbiters. Being within +/-1 of the median grade will get an arbiter a reward, +/-2 will get no reward but also no loss in reputation, while grading outside of +/-2 will cause an arbiter to lose reputation and staked tokens (if they staked any).

For example: If a driving situation has a median grade of 6.5, arbiters grading between 5.5 and 7.5 will get a reward and increased reputation. Those grading between 4.5 and 8.5 get nothing, while the rest lose reputation and staked tokens.

A maximum of 10 videos, lasting up to 30 seconds each, will be graded for each rent event. Videos will only be submitted for grading when the onboard sensors detect an asset was used outside the agreed parameters of the rent event. (e.g. supercar lateral acceleration over 0.8g)

Each successful video grading confirmation is worth 5 points.

3.2.9. Reputation levels of an arbiter:

Level 1: 0 - 10 correct confirmations

Level 2: after 10 correct confirmations

Level 3: top 30%

Level 4: top 10%

Level 5: top 1%

Each successful confirmation = 1 point

3.2.10. Penalties for false confirmations:

# of faults	Staking arbiter	Non-staking arbiter
1	-2 points	-4 points
2	-4 points	-16 points
3	-16 points	-64 points
4	-32 points	-128 points
Each subsequent fault +	-32 points	-128 points

Termination of an arbiter is at -500 points

3.2.11. Voting availability

After a new data set is acquired from the rent event, arbiters with high reputation status and staked tokens will have priority access to voting and thus the award pool.

This is the timeline of access availability for when an average time to reach consensus is around 100 minutes and will be adapted when the time shortens.

0 - 5 minutes = High reputation (level 4 and 5) + Staked tokens

5 - 15 minutes = Staked tokens

15+ minutes = Anyone

3.3 Partnerships

Since the protocol supports management and renting of any kind of movable good, we plan on expanding it to all objects that can be rented, as long as the following requirements can be met:

- Any damage inflicted during the rent event can be easily identified;
- The NFT can be tracked during the rent event;
- Appropriate use of the NFT can be easily determined.

We will kickstart the usage of the protocol by renting supercars with our first partner, Furlantech, and their app supporting our protocol.

We have an exclusive partnership with the global car enthusiast community, Cars & Coffee. In 2018, we will sponsor 140 Cars & Coffee events all over the globe and be present at more than 25 events.

After this initial proof of concept (Q2 2018) we will introduce a new use case, charter yacht rental, with our partner Sentinel, and integrate their app into our protocol.

Afterwards (Q1 2019), our plan is to start working with more companies interested in using our protocol within the values of authorize.

3.4 Ecosystem Growth Pool

In order to promote community growth and protocol adoption, the protocol will initially heavily reward active community members and early use case agencies.

These community rewards will come from the ecosystem growth pool - a reserve of 150.000.000 ATR tokens, which will be locked in a smart contract. With each successful rent event, a portion of these tokens will be released into the growth pool. From there, the tokens will be distributed to the arbitration community, as rewards for their services.

By adding these 150.000.000 ATR into the total token supply, the team and company's initial 50% total token share will be diluted down to 33%, meaning that the community will control a bigger part of the total token supply. With this, we aim to support the community and enable them, not us, to become the caretakers of authorize.

The community rewards from the growth pool will diminish over time, until the pool is exhausted, at which time our standard fee distribution system will come into play.

The community rewards will be distributed in 8 stages, with each stage consisting of 18.750.000 ATR tokens. The amount of tokens distributed for each completed rent event is determined as a percentage of the total fee for that event.

Only community members will be rewarded directly from the growth pool. However, early use case agencies will also benefit from this system, as they will get to keep a larger portion of the rent fee for each event. Initially, the arbitration community will be rewarded solely from the reward pool, with the use case agencies receiving 25% of the rental fee. Over time, the protocol will transition to our normal payment distribution system, as presented in the table below.

Stage #	Arbitration Community/	Calculated ATR released from reward pool for rent event worth 10000 ATR
1	90% from reward pool	9000 ATR released to community
2	50% from reward pool	5000 ATR released to community
3	35% from reward pool	3500 ATR released to community
4	20% from reward pool	2000 ATR released to community
5	15% from reward pool	1500 ATR released to community
6	10% from reward pool + 2% from rental fee	1000 ATR released to community
7	7% from reward pool + 5% from rental fee	700 ATR released to community
8	2% from reward pool + 10% from rental fee	200 ATR released to community

For a rent event worth 100.000 ATR, this means that:

During stage #1 the asset owner gets 75.000 ATR, the use case agency gets 25.000 ATR, and the community gets 90.000 ATR.

During stage #7 the asset owner gets 75.000 ATR, the use case agency gets 20.000 ATR, and the community gets 12.000 ATR.

After the reward pool is depleted and our normal payment distribution system comes into play, the asset owner gets 75.000 ATR, the use case agency gets 15.000 ATR, and the community gets 10.000 ATR.

4. The Token Economy

4.1 Purpose and Characterization

The ATR token will be used as the main currency inside the authorize ecosystem, supporting all aspects of the sharing economy.

Since possession and transfer of cryptocurrency can all be performed digitally and in a decentralized fashion, the sharing economy is the perfect candidate for its use.

The ATR token will effectively create its own economy that will produce rent related services. The services generated within the protocol will represent what we can call, borrowing the analogy of the gross domestic product (GDP), gross token product (GTP). GTP is the sum of all the value created within the protocol, i.e. the product of rents and price of rents, minus the “imports”.

Imports are all services that are needed for a certain rent, but are (at the moment) not available within the protocol and must thus be obtained from outside (“imported”) and paid for in fiat. Although, initially, imports may represent a substantial part of the economy, the goal over time is to migrate most, if not all, service providers to the protocol, by providing a better and smoother platform for their operation.

The GTP represents the foundation for the token’s value. The ATR token supports the whole token economy, and the utility value of the ATR token can be determined by applying the monetary equation $GTP \cdot P = M \cdot V$, where P is the price of service expressed in ATR tokens, M is the outstanding token supply and V the velocity of circulation. The V is generally fixed and the outstanding number of tokens (M) will be fixed as well, once all coins are distributed or vested, according to the determined schedule. P then reflects the price of service within the token economy expressed in ATR. The value of ATR expressed in fiat (e.g. Euro) is subsequently determined via the exchange rate mechanism in such a way that the price of services, expressed in either currency, are similar.

4.2 Token Use Cases

The authorize (ATR) tokens will be used:

- By the renter to pay the security deposit (the tokens will be locked in a smart contract that can only be released once the community confirms that the NFT was returned undamaged)
- By the community to stake when confirming if a NFT was returned undamaged (if the decision of a user is found to be false then the user loses that stake)
- By the community to stake when scoring a user's operating ability
- By the rental agency to pay the authorize community to provide services
- By the renter to pay for the rental service
- By new use case agencies to gain access to the protocol
- By the community to crowdfund the purchase of NFTs

4.3 Implementation (ERC-20)

The ATR token will be issued on the Ethereum blockchain using a smart contract defined by the ERC-20 standard.

Movable goods will be digitalized within the authorize protocol using the EIP-841 standard.

The authorize protocol uses the Ethereum blockchain to enable:

- Registry with transparent tracking history
- Decentralized data storage
- Arbiter reputation system storage
- Payment system
- Digitalization of physical assets
- Token staking mechanism

The protocol is accessed through an Application Program Interface (API) and a decentralized application (DAPP).

4.4 Token Vesting and Distribution

The team and company's token shares will undergo a monthly vesting process. In this way, we will ensure both the team and company stay committed to the project.

The company's token share will be released over a 1-year period.

The team's token share will be released over a 2-year period.

Because the authorize community is the most important part of the protocol, our distribution plan includes giving away a third of the total token supply to active community members. This is implemented through our Ecosystem Growth Pool. In this way, we want to reward participation and protocol adoption, as well as give the community greater control over the token economy.

Therefore, the final token split, once the Growth Pool is exhausted and the vesting process is completed, will be 1/3 team and company, and 2/3 community.

Our vision is to create a community supported open protocol, with its own self-sustaining economy. Over time, this would mean that the community, in cooperation with the use case agencies, would become the main decision maker behind protocol development and utilization. Our token distribution plan reflects this vision.

5. Timeline

5.1 Milestones

Timeline	Blockchain development	Application development
2018		
Q1		Demo mobile app
Q2		MVP mobile app
Q3	Reward Engine	MVP web app
Q4	Crowd purchases	Crowd purchases app
2019		
Q1	NFT & Reputation	Final mobile app
Q2	Authorization & Staking	Final web app
Q3	Decentralized exchange for NFT	Hardware tracking v2
Q4	Payment channels	Market expansion

5.2 ICO Timeline

Private:

Phase: January 29th - May 1st, 2018, 12:00 CET

Presale:

Phase: May 7th, 12:00 CET - May 8th, 2018, 12:00 CET or till the presale cap is reached.

Crowdsale:

Phase: Starts one week after presale is closed and no later than May 14th, 2018, 12:00 CET. Ends June 14th, 2018, 12:00 CET or when the crowdsale cap is reached.

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